

# Sex Offenders and Sex Crime Recidivism: Investigating the Role of Sentence Length and Time Served

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## Abstract

The relationship between criminal justice sanctions and sex crime recidivism remains largely unexplored. Therefore, using a sample of 8,461 previously incarcerated male sex offenders from 13 states in the United States, we focus on the sentence meted out for the sex crime conviction and the amount of time sex offenders served as a result of their conviction. Sex offenders were grouped into four categories: rapists, sexual assaulters, child molesters, and all sex offenders combined. Recidivism was operationalized as rearrest and reconviction. Findings suggest how recidivism is operationalized matters. When recidivism is measured as rearrest for another sex offense, sentence length and time served are unrelated to sex crime recidivism. On the other hand, when recidivism is operationalized as reconviction for another sex offense, sentence length is *positively* related to recidivism for rapists, sexual assaulters, child molesters, and all sex offenders combined, while time served is *negatively* related to recidivism for child molesters and all sex offenders combined.

## Keywords

sex offenders, sex crimes, recidivism, sentence length, time served

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## Introduction

The United States takes an aggressive stance toward sex offender policy. Contemporarily, U.S. criminal justice sanctions for sex offending are becoming more punitive with a trend toward incarceration and longer sentences, whereas other countries approach this area with more caution (Cohen & Jeglic, 2007; Lieb, 2000; Petrunik, 2002). In the United States, sex offenders are receiving longer prison sentences compared to non-sex offenders (Langan & Levin, 2002). According to a 2004 report by the State of Washington, non-sex offenders received, on average, a 3-year sentence compared to sex offenders who were sentenced to 7½ years (Sentencing Guidelines Commission, 2004). From 1991 to 2010, the average sentence length for sex offenders in Minnesota increased by 2 years, from 5 to 7 years (Minnesota Department of Corrections, 2011). Other states, such as Iowa, Florida, and California, are following the trend of sentencing sex offenders to longer periods of incarceration. Iowa's law, which some view as the toughest law in the nation, mandates that any individual convicted of first-degree sexual assault be sentenced to life imprisonment without the possibility of parole. Some states, like Minnesota, are also considering legislation that doubles the maximum sentence allowed if an individual is convicted of a sex crime against a child. Research thus far indicates that community members support longer terms of incarceration for sex offenders (Levenson, Brannon, Fortney, & Baker, 2007).

Research addressing the efficacy of criminal justice mechanisms to reduce recidivism has most often focused on sex offender registration and community notification (e.g., Bandy, 2011; Zgoba, Veysey, & Dalessandro, 2010) and residency restrictions (e.g., Duwe, Donnay, & Tewksbury, 2008; Zandbergen, Levenson, & Hart, 2010). Given the trend toward longer sentences for sex offenders (Cohen & Jeglic, 2007), it is surprising that few studies have examined the effect of sentence length and the proportion of that sentence served, or time served, on sex offender recidivism.

Although many sex offenders are not sentenced to incarceration (Langevin & Curnoe, 2012; Patrick & Marsh, 2011), it is not uncommon for sex offenders, especially violent sex offenders, to experience a period of confinement. Patrick and Marsh (2011) reported that 41% of the child sex offenders they studied were sentenced to prison. Langevin et al. (2004) reported that slightly more than half (55%) of their sample of sex offenders had been incarcerated. In the United States, given the probability of imprisonment, the increase in the severity of sentencing, and the increase in the length of incarceration, understanding the effect of sentence length and time served on sex offender recidivism is particularly important, especially when taking into consideration the cost of incarceration and public safety concerns about sex offenders.

## Theoretical Orientation

Criminological theories make different predictions about the effects of sentence length and time served on recidivism. Deterrence theory suggests that longer sentences and more time served should reduce sex crime recidivism while shaming theory and

informal social control suggest that longer sentences and more time served may increase recidivism. On the other hand, self-control theory predicts these factors may have no effect on sex crime recidivism.

### *Deterrence Theory*

Deterrence theory assumes that offenders are rational and choose to commit crimes when the perceived benefits of criminal behavior outweigh the potential costs. Their decision making can be influenced by the certainty, severity, and swiftness of sanctions (Jacobs, 2010). When individuals perceive a high likelihood of apprehension in which swift and severe punishment results, they are unlikely to offend. Based on this theory, when sex offenders receive longer prison sentences and serve more time, they should be less likely to recidivate. Nunes, Firestone, Wesler, Jensen, and Bradford (2007) speculate that sex offenders who get sentenced to prison might be less likely to recidivate with a sex crime, because this could mean returning to prison.

### *Shaming*

In contrast to deterrence theory, an element of shaming theory suggests that criminal sanctions may increase the probability of recidivism. According to Braithwaite (1989), when prisoners are released, they can experience disintegrative shaming where community members reject and stigmatize them. This ultimately leads to social isolation. Disintegrative shaming leads to rejection and no efforts are made to reintegrate the offender into the community. Since offenders are stigmatized and isolated, they tend to feel angry and humiliated, which makes reoffending more likely.

In the United States, convicted sex offenders are primarily subjected to disintegrative shaming. They often lack basic support structures such as employment, housing, and prosocial relationships because of the stigma attached to their crimes (Edwards & Hensley, 2001; Visser & Travis, 2003). There have been reports of job loss or unemployment, vigilante justice, and geographical isolation from family (Robbers, 2009; Tewksbury & Lees, 2006). The resulting stress and isolation are emotional triggers that may lead to sex crime recidivism. In addition, Willis, Levenson, and Ward (2010) caution against using labels like “sexual predator” and “child molester” because sex offenders could internalize these labels. This internalization may result in a self-fulfilling prophecy where sex offenders cannot form a positive identity and no longer refrain from committing additional sex crimes.

### *Informal Social Control*

According to Sampson and Laub’s (1993) theory of informal social control, or adult social bonds, incarceration interferes with social bonds by disrupting employment and adult relationships. This in turn increases the probability of future offending due to the lack of ties to conventional prosocial institutions. Research suggests that stable employment and marriage influences sex offender recidivism (Barbaree, Langton,

Blanchard, & Cantor, 2009; Redondo, Luque, Navarro, & Martinez, 2007). Specifically, not being married, employment history, and employment stability are related to sex crime recidivism (Barbaree et al., 2009; Hanson & Bussiere, 1998; Hanson & Morton-Bourgon, 2005). Based on this theory, sentence length and time served may increase recidivism among sex offenders primarily because incarceration contributes to unstable employment and unstable adult relationships.

### ***Self-Control***

Self-control theory posits that the primary cause of crime is low self-control and that this is a stable characteristic. Individuals who have low self-control tend to be physical, self-centered, and insensitive, and have difficulty delaying gratification (Gottfredson & Hirschi, 1990). According to Gottfredson and Hirschi (1990), individuals with low self-control are unresponsive to both informal and formal sanctions. In short, although criminals may be rational, as deterrence theory assumes individuals who have low self-control may be so impulsive and shortsighted that they are unlikely to be deterred by the severity of sanctions. Wright, Caspi, Moffitt, and Paternoster (2004) argue that punishment may not work for these individuals because they do not have the foresight to evaluate the possible resulting punishment. Based on this theory, sentence length and time served will have no real effect on recidivism because sex offenders with low self-control will continue to commit sex crimes.

### **Previous Research**

There are few studies that focus on sentence length or time served for sex offenders and the effect these criminal justice sanctions have on sex crime recidivism. We were only able to locate one study that focuses primarily on sentence length and time served. Nunes et al. (2007) investigated the relationship between time served and recidivism for 627 adult male sex offenders assessed at a Canadian forensic psychiatric unit. Sixty-four percent of these offenders were sentenced to incarceration, with an average sentence length of 21 months. When controlling for risk of recidivism, based on scores from the RRASOR-M (Rapid Risk Assessment for Sexual Offense Recidivism-Modified), their analysis showed there was no relationship between time served and recidivism.

In addition to Nunes et al. (2007), a few studies have included time served as a control variable (Duwe & Donnay, 2008, 2010; Duwe & Goldman, 2009). In their analysis of the impact of Megan's Law on the recidivism of sex offenders, Duwe and Donnay (2008) found that time served (length of stay) was not significantly related to recidivism, measured as rearrest, reconviction, and reincarceration, for sex crimes or non-sex crimes. While focusing on failure to register as a sex offender, Duwe and Donnay (2010) also found that time served did not have a significant effect on rearrest. In contrast, a study of prison-based treatment found that time served significantly reduced rearrest for a sex offense (Duwe & Goldman, 2009).

Finally, Hanson and Bussiere's (1998) meta-analysis is one of the most widely recognized studies examining the factors most strongly related to sex offender recidivism. Using stringent selection criteria, the authors selected sixty-one studies, creating a total sample size of 28,972 sex offenders. Recidivism was predicted to increase for those with prior non-sex offenses, prior sex offenses, and sexual interest in children. Their research also found a positive relationship between current sentence length and sex crime recidivism, although the effect was small and may not have much practical utility when predicting sex offender recidivism (Hanson & Bussiere, 1998).

Not only is the literature on sentence length, time served, and sex offender recidivism sparse, existing research suffers from several limitations. Most studies treat sex offenders as a homogeneous rather than a heterogeneous population. Samples are drawn from clinical or treatment settings (see, for example, Langevin & Curnoe, 2011, 2012; Nunes et al., 2007). Langevin and Curnoe (2012) and Nunes et al. (2007) also drew their samples from Canadian sex offenders. Since Canada has a lower crime rate and incarcerates fewer offenders than the United States, results based on samples of American sex offenders may differ. In addition, other research looking at sex offender recidivism has provided, for example, averages of sentence length and time served for the sample, but does not examine how these variables are related to sex crime recidivism (see, for example, Langevin & Curnoe, 2012; Langevin et al., 2004).

## Method

We analyzed the most recent data set on recidivism compiled by the Bureau of Justice Statistics (BJS), the primary government agency that provides criminal justice statistics in the United States, "Recidivism of Prisoners Released in 1994." It contains data on 38,624 offenders, or two thirds of prisoners released in 1994, from 15 states: Arizona, California, Delaware, Florida, Illinois, Maryland, Michigan, Minnesota, New Jersey, New York, North Carolina, Ohio, Oregon, Texas, and Virginia. BJS classified each prisoner by offense category that corresponded to their conviction offense that led to their 1994 release from prison. In all, 10,543 were classified as sex offenders. Each sex offender was then tracked for 3 years post-release to capture sex crime recidivism. The data also include demographic characteristics and state and federal criminal history records.

Male sex offenders were included in the analysis if they were not deceased, had a full Record of Adjudication and Prosecution (i.e., RAP sheet), and were 18 years of age or older. Juvenile and female sex offenders were excluded because sample sizes were too small and each population's recidivism factors may be unique compared to males (Freeman & Sandler, 2008; Miner, 2002). We excluded cases from Michigan, which measured prison terms by minimum sentence length, because all other states measured the maximum sentence length. We also excluded cases from Ohio due to no reconviction data. The final sample consists of 8,461 male sex offenders from 13 states in the United States (for a complete description of the sampling design and methodology, see Langan & Levin, 2002, and Langan, Schmitt, & Durose, 2003).

## Dependent Variables: Defining Recidivism

Sex offender recidivism is defined as the subsequent commission of a sex crime after release from prison. We operationalize recidivism in two ways: rearrest and reconviction. Rearrest, a binary variable, is defined as any rearrest for the commission of another sex crime within the 3-year follow-up period, specified as 1,096 days, after being released from prison in 1994. Approximately 5% of the sample was rearrested for a sex crime within the 3-year follow-up period. Reconviction, also a binary variable, is defined as reconviction for the commission of another sex crime within the same 3-year follow-up period. Approximately 4% of the sample was reconvicted for a sex crime.

We examined sex crime recidivism for rapists, those who commit sexual assault (excluding rape and child molesting), child molesters, and all sex offenders combined. We used the “all sex offenders combined” category as a reference category to illustrate how results change once sex offenders are separated into distinct types. Rape was defined by state law as “forcible intercourse (vaginal, anal, or oral) with a female or male” (Langan et al., 2003, p. 3). Any person not clearly identified as a rapist was placed in the sexual assault category (Langan et al., 2003). Child molesters were defined as having forcible or non-forcible sexual contact with a child up to and including intercourse (Langan et al., 2003).

## Independent Variables

Based on prior research, we chose a set of independent variables to include in our models: victim age, the number of prior arrests, the number of prior arrests for a sex offense, the age of the sex offender when released from prison, the sentence length meted out for the sex offense for which the offender was released in 1994, and the amount of time served before release in 1994 (Craig, 2011; Duwe & Donnay, 2008; Hanson & Bussiere, 1998; Veysey & Zgoba, 2010). We divided victim age into three dummy variables: child victim (6 to 12 years of age), adolescent victim (13 to 17 years of age), and adult victim (18 year or older). For the analysis, we use the adult dummy variable as the comparison category. Prior arrests are defined as the number of times a prisoner was arrested prior to the release date in 1994. Prior arrests exclude the sex crime arrest that resulted in the most recent incarceration. Race and ethnicity were included as control variables. Hispanic ethnicity is coded as 1 and non-Hispanic ethnicity is coded as 0. We control for race by including three dummy variables where African American and “Other” (American Indian/Aleutian and Asian/Pacific Islander) are included in the model and “White” is used as the comparison category.

We focus on sentence length and the amount of time served for the offenders’ sex crime conviction offense that led to their release from prison in 1994. BJS used the information recorded in the RAP sheets to calculate sentence length. For individuals sentenced to consecutive terms of imprisonment, the length of time for each individual sentence was added together to equal one total prison sentence. For individuals sentenced to concurrent terms of imprisonment, BJS recorded the longest sentence the offender would serve. There is no way to distinguish who served concurrent versus consecutive sentences. Time served measures only the amount of time served in prison

**Table 1.** Descriptive Statistics of Variables of Interest (*N* = 8,461).

	<i>M</i> or percent	<i>SD</i>	Minimum	Maximum
Dependent variables				
Rearrested for a sex crime	5.35%	0.23	0	1
Reconvicted for a sex crime	4.14%	0.20	0	1
Independent variables of interest				
Sentence length for 1994 imprisonment, in months	85.31	87.22	0	1,188
Amount of time served prior to 1994 release, in months	36.85	38.87	0	436
Independent variables				
Adult victim, ages 18 and up <sup>a</sup>	51.29%	0.50	0	1
Child victim, ages 6 to 12	4.81%	0.21	0	1
Adolescent victim, ages 13 to 17	43.90%	0.50	0	1
Number of prior arrests	4.75	5.80	0	88
Number of prior arrests for a sex offense	1.32	1.02	0	13
Age at release from prison in 1994	36.82	10.56	18	86
Control variables				
White, Non-Hispanic <sup>b</sup>	49.41%	0.50	0	1
African American, Non-Hispanic	31.89%	0.47	0	1
Other, Non-Hispanic	1.41%	0.12	0	1
Hispanic	17.27%	0.38	0	1

<sup>a</sup>Comparison category in the models is adult victim, ages 18 and over.

<sup>b</sup>Comparison category in the models is White, Non-Hispanic.

for the sex offense conviction that led to their release in 1994 and does not include any other time that offenders may have spent in jail or prison prior to this sentencing. In addition, there is no way to account for any state-level differences in “jail credit” in the analysis. Although there is a moderate correlation between sentence length and time served, regression diagnostics suggest that including sentence length and time served in the same models does not lead to multicollinearity. Variance inflation factors are not above 2.0 for all of the variables included in the models. Table 1 includes the descriptive statistics for the variables of interest.

## Analytic Strategy

Similar to previous research on sex offender recidivism (Duwe & Freske, 2012), we use binary logistic regression (BLR). BLR predicts the odds of an event occurring. The occurrence of the event is 1 if a sex offender is rearrested or reconvicted for a sex offense within 3 years after release from prison and 0 if a sex offender is not rearrested or reconvicted within this time frame. BLR models can be interpreted via log-odds.

$$\ln \frac{P(Y_i = 1)}{1 - P(Y_i = 1)} = \ln(\text{Odds}_i) = \alpha + \sum_{k=1}^K \beta_k X_{ik}.$$

The above equation represents the natural logarithm of the odds. The odds that  $Y = 1$  is a ratio of probabilities:  $P(Y_i = 1)$ , the probability a sex offender will recidivate with a new sex crime; divided by  $1 - P(Y_i = 1)$ , the probability a sex offender will not

recidivate with a new sex crime. The log-odds is the linear combination of the intercept,  $\alpha$ , plus the sum of the coefficients,  $\beta_k$ , multiplied by the independent variables,  $X_{ik}$ .  $K$  is the total number of independent variables. The coefficients associated with the log-odds lack a metric in which substantive results can be explained (Pampel, 2000). Therefore, significant findings are reported as percent change in the odds. Percent change in the odds is interpreted as follows: For each additional unit change in a significant ( $p \leq .05$ ) independent variable, the odds of recidivating with a sex crime will increase or decrease by a certain percentage, holding all other variables constant.

Because sentence length and time served have skewed distributions, we ran multiple analyses that identified outliers. We then reran the analyses removing cases that we felt, after further investigation, may artificially produce significant results. The results did not change after removing these cases. Ultimately, we did remove five cases because of what we perceived to be incorrectly measured or entered data; for example, being sentenced to zero time but then having a value greater than zero on time served. Removing these five outliers did not influence the results of the study.

## Results

### Demographics

The average age of the sample when released from prison was 37 years (range = 18-86;  $SD = 10.56$ ). Child molesters were slightly older at release at 39 years (range = 18-86;  $SD = 11.18$ ). Rapists (range = 18-84;  $SD = 9.51$ ) and sexual assaulters (range = 18-83;  $SD = 10.64$ ) were roughly 36 years old at release. The sample averaged five prior arrests (range = 0-88;  $SD = 5.8$ ). Child molesters were slightly lower with four prior arrests (range = 0-46;  $SD = 5.15$ ). Approximately 63% of the sample had four or fewer prior arrests: 7% with four, 9% with three, 12% with two, 16% with one, and 19% with zero. The remaining 37% had five or more prior arrests. The sample's average for prior arrests for a sex offense was one (range = 0-13;  $SD = 1.02$ ). Approximately 90% of the sample had two or fewer prior arrests for a sex offense: 21% with two, 56% with one, and 14% with zero. Pertaining to criminal justice sanctions, the sample averaged approximately 85 months for the sentence length for the 1994 imprisonment (range = 0-1,188;  $SD = 87.22$ ) and averaged 37 months of time served (range = 0-436;  $SD = 38.87$ ). Table 2 disaggregates the sentence length and time served by the type of sex offense.

### Recidivism Measured as Rearrest

Table 3 shows the results for sex crime recidivism measured as rearrest. Of particular interest, using rearrest as the marker for recidivism, sentence length for the 1994 imprisonment and time served is not associated with sex crime recidivism for any of the four groups of sex offenders.

Victim age is associated with sex crime recidivism only when all sex offenders are combined together into a single homogeneous group. When disaggregated by type of



**Table 2.** Sentence Length and Time Served by Type of Sex Offense.

	<i>M</i>	<i>SD</i>	Minimum	Maximum
Sentence length for 1994 imprisonment, in months				
All sex offenders combined ( <i>N</i> = 8,461)	85.31	87.23	0	1,188
Rape ( <i>n</i> = 2,175)	113.95	110.67	0	1,188
Sexual assault <sup>a</sup> ( <i>n</i> = 2,821)	80.55	72.69	0	1,187
Child molesting ( <i>n</i> = 2,925)	63.31	65.44	0	1,080
Amount of time served prior to 1994 release, in months				
All sex offenders combined ( <i>N</i> = 8,461)	36.85	38.87	0	436
Rape ( <i>n</i> = 2,175)	51.85	51.86	0	436
Sexual assault <sup>a</sup> ( <i>n</i> = 2,821)	33.31	31.41	0	321
Child molesting ( <i>n</i> = 2,925)	26.34	24.34	0	163

<sup>a</sup>Sexual assault excludes rape and child molesting.

sex offender, victim age is no longer associated with sex crime recidivism. The number of prior arrests is associated with recidivism among those who committed sexual assault and child molesters, but not rapists. For each prior arrest, the odds of recidivating with a sex crime after release increases by approximately 3% for sexual assaulters and 4% for child molesters, holding all other variables constant. Consistent with prior research, when using rearrest to measure recidivism, the number of prior arrests for a sex offense is associated with sex crime recidivism for each category of sex offenders. For each additional prior arrest for a sex offense, the odds of recidivating with a sex crime after release from prison increases by approximately 36% for rapists, 33% for sexual assaulters, and 41% for child molesters, holding all other variables constant.

The life course perspective states that the propensity for criminality decreases with age. With this sample of sex offenders, we find that age is associated with decreased likelihood of sex crime recidivism after release from prison. A sex offender's age at time of release from prison is significant for all the three categories of sex offenders in the expected direction. For each additional year a sex offender ages in prison before release, the odds of recidivating with a new sex crime after release from prison decreases by approximately 2% for rapists, 3% for sexual assaulters, and 3% for child molesters, holding all other variables constant.

### *Recidivism Measured as Reconviction*

When recidivism is measured as reconviction, the sentence length for the 1994 imprisonment is associated with recidivism for rapists ( $p = 0.002$ ), sexual assaulters ( $p = 0.01$ ), and child molesters ( $p = 0.000$ ), as well as all sex offenders combined ( $p = 0.000$ ; see Table 4). For each additional month in sentence length for the 1994 imprisonment, the odds of recidivating with a sex crime after release from prison increases by less than 1% for rapists, less than 1% for sexual assaulters, and approximately 1% for child molesters, holding all other variables constant. Because sentence length and

**Table 3.** Binary Logistic Regression Model Predicting Sex Crime Recidivism (Measured as Rearrest).

	All sex offenders (N = 8,461)			Rape (n = 2,715)			Sexual assault <sup>a</sup> (n = 2,821)			Child molestation (n = 2,925)		
	Coefficient (SE)	% change in odds		Coefficient (SE)	% change in odds		Coefficient (SE)	% change in odds		Coefficient (SE)	% change in odds	
Sentence length for 1994 imprisonment, in months	-0.001 (0.001)			-0.0001 (0.001)			-0.002 (0.002)			-0.003 (0.003)		
Amount of time served prior to 1994 release, in months	0.002 (0.002)			0.004 (0.002)			0.002 (0.004)			0.005 (0.01)		
Child victim, ages 6 to 12	0.40* (0.21)	48.5		0.74 (0.54)			0.15 (0.27)					
Adolescent victim, ages 13 to 17	-0.05 (0.11)			0.21 (0.28)			-0.26 (0.21)					
Number of prior arrests	0.02** (0.01)	2.5		0.005 (0.02)			0.03* (0.01)	2.8		0.04*** (0.01)	4.0	
Number of prior arrests for a sex offense	0.31*** (0.04)	35.8		0.31*** (0.07)	36.3		0.28*** (0.07)	32.7		0.34*** (0.07)	40.5	
Age at release from prison in 1994	-0.03*** (0.01)	-2.9		-0.02* (0.01)	-2.4		-0.03** (0.01)	-2.8		-0.03** (0.01)	-3.2	
African American, Non-Hispanic	-0.14 (0.11)			-0.12 (0.19)			-0.15 (0.18)			-0.11 (0.24)		
Other, Non-Hispanic	-0.20 (0.43)			0.13 (0.62)			-0.66 (1.03)			-0.25 (0.74)		
Hispanic	-0.33* (0.15)	-27.9		-0.43 (0.29)			-0.27 (0.30)			-0.27 (0.22)		
Constant	-2.32 (0.21)			-2.60 (0.39)			-2.14 (0.33)			-2.30 (0.37)		
Pseudo R <sup>2</sup>	.07			.05			.06			.10		

Note. Standard errors are in parentheses. Reported Pseudo R<sup>2</sup> is McKelvey and Zavoina's R<sup>2</sup>.

<sup>a</sup>Sexual assault excludes rape and child molesting.

\*p ≤ .05. \*\*p ≤ .01. \*\*\*p ≤ .000.

**Table 4. Binary Logistic Regression Model Predicting Sex Crime Recidivism (Measured as Reconviction).**

	All sex offenders (N = 8,461)		Rape (n = 2,715)		Sexual assault* (n = 2,821)		Child molestation (n = 2,925)	
	Coefficient (SE)	% change in odds	Coefficient (SE)	% change in odds	Coefficient (SE)	% change in odds	Coefficient (SE)	% change in odds
Sentence length for 1994 imprisonment, in months	0.004*** (0.001)	0.4	0.003*** (0.001)	0.3	0.003*** (0.001)	0.3	0.01*** (0.001)	0.8
Amount of time served prior to 1994 release, in months	-0.01*** (0.002)	-0.9	-0.004 (0.003)		-0.01 (0.004)		-0.02*** (0.01)	-2.3
Child victim, ages 6 to 12	0.07 (0.27)		0.33 (0.74)		-0.34 (0.36)			
Adolescent victim, ages 13 to 17	0.15 (0.12)		-0.25 (0.41)		-0.14 (0.24)			
Number of Prior Arrests	0.01 (0.01)		-0.01 (0.02)		-0.005 (0.02)		0.04** (0.02)	4.0
Number of prior arrests for a sex offense	0.20*** (0.05)	22.0	0.28*** (0.08)	32.2	0.16 (0.09)		0.19* (0.08)	20.4
Age at release from prison in 1994	-0.02*** (0.01)	-2.4	-0.02 (0.01)		-0.02* (0.01)	-2.0	-0.03*** (0.01)	-2.9
African American, Non- Hispanic	-0.14 (0.13)		0.02 (0.23)		-0.26 (0.22)		-0.21 (0.24)	
Other, Non-Hispanic	0.15 (0.43)		0.61 (0.62)		-0.17 (1.03)		-0.04 (0.74)	
Hispanic	-0.32 (0.16)		-0.78* (0.40)	-54.3	0.30 (0.29)		-0.41 (0.25)	
Constant	-2.66 (0.24)		-3.04 (0.47)		-2.54 (0.38)		-2.30 (0.39)	
Pseudo R <sup>2</sup>	.06		.08		.04		.11	

Note. Standard errors are in parentheses. Reported Pseudo R<sup>2</sup> is McKelvey and Zavoina's R<sup>2</sup>.

\*Sexual assault excludes rape and child molesting.

\*p ≤ .05. \*\*p ≤ .01. \*\*\*p ≤ .000.

time served are measured in *months*, the percent change in odds appears very small. When translated into *years*, however, the cumulative effects are more substantial. For example, for reconviction, sentence length is significantly related to sex crime recidivism for rapists. For every one additional month rapists are sentenced to prison, their odds of recidivating with a sex crime increases by 0.3%. This is very small, but for every additional year that rapists are sentenced, their odds of recidivating with a sex crime increase by 3.6% ( $0.3 \times 12$  months). The average sentence length for rapists in the BJS sample is 114 months (see Table 2). Therefore, rapists who receive the average sentence are 34.2% more likely to recidivate with a new sex crime once released from prison. For individuals who committed sexual assault, the percent change in the odds of recidivating with a new sex crime is the same as rape (0.3% per month, 3.6% per year). Sexual assaulters who receive the average sentence of 81 months are 24.3% more likely to recidivate with a sex crime post-release. The percentage change in the odds of recidivating with a new sex crime post-release is 0.8% per month, or 9.6% per year, for child molesters. Child molesters who receive the average sentence (63 months) are 50.4% more likely to recidivate with a new sex offense.

The amount of time served in prison prior to release in 1994 is associated with recidivism for child molesters ( $p = 0.000$ ) and all sex offenders combined ( $p = 0.000$ ). The amount of time served is negatively related to recidivism. For each additional month of time served for the 1994 imprisonment offense of child molestation, the odds of recidivating with a sex crime after release from prison decreases by 2.3%, holding all other variables constant. Over the course of a year, child molesters are 27.6% less likely to recidivate with a sex crime. Child molesters who serve 26 months in prison, the average amount of time that child molesters in the sample served, are 59.8% less likely to recidivate with a sex crime (see Table 2).

When using reconviction as the measure of sex crime recidivism, victim age is not associated with sex crime recidivism. The association between victim age and recidivism when using rearrest as the measure of recidivism disappears once the more restrictive definition of recidivism is used. The number of prior arrests is now associated only with recidivism for child molesters. For each additional prior arrest, the odds of a child molester recidivating with a sex crime after prison increases by approximately 4% for both measures of recidivism. The number of prior arrests for a sex offense is now associated only with sex crime recidivism for rapists and child molesters, not sexual assaulters. For each additional prior arrest for a sex offense, the odds of recidivating with a sex crime after release from prison increases by approximately 32% for rapists and 20% for child molesters, holding all other variables constant. Note the difference when using the more restrictive definition of recidivism. For each additional arrest for a sex offense, the odds of a child molester recidivating increase by 41% when using rearrest to measure recidivism compared to a 20% increase when using reconviction to measure recidivism. This results in a 21% difference in the odds of recidivating with a new sex crime after release from prison depending on the definition of recidivism used.

The age of the offender at the time of release from prison is associated with sex crime recidivism for those who commit sexual assault and child molesters. For those

who commit sexual assault, the odds of recidivating with a sex crime after release from prison decrease by approximately 2%, holding all other variables constant. For child molesters, the odds of recidivating with a sex crime after release from prison decrease by 3%, holding all other variables constant. Last, we do find ethnicity matters with rapists. For rapists, the odds of recidivating with a new sex crime after release from prison decrease by 54% for Hispanics compared to non-Hispanics, holding all other variables constant.

## Discussion

We investigated the relationship between sentence length, time served in prison, and sex crime recidivism. Depending on how recidivism was measured, we found that sentence length and time served had different outcomes. When sex crime recidivism was measured as rearrest, there were no significant relationships between sentence length, time served, and recidivism. When using reconviction to measure sex crime recidivism, however, each additional month of incarceration was associated with a slight *decrease* in the odds of recidivism for child molesters. In contrast, each additional month in sentence length was associated with a slight *increase* in the odds of sex crime recidivism for rapists, sexual assaulters, and all sex offenders combined. Although the percent changes in the odds of recidivism were small compared to other variables, the cumulative associations between sentence length, time served, and sex crime recidivism were more substantial over time. It is important to note that with this sample the follow-up period was limited to 3 years and recidivism rates were very low.

The results of our study are both consistent and inconsistent with prior research. When recidivism was measured as rearrest, we found that sentence length and time served were not related to sex crime recidivism, which is consistent with research by Nunes et al. (2007). On the other hand, when recidivism was measured as reconviction, we found that sentence length was positively related to sex crime recidivism, which is consistent with the results of Hanson and Bussiere's (1998) meta-analysis.

These mixed findings may be the result of different samples or different measures of recidivism. For instance, our study and Hanson and Bussiere's (1998) study have large samples, while Nunes et al. (2007) used a sample of 627 sex offenders. Sex offender samples were also drawn from different locales. We used a sample of sex offenders released from the United States prisons, Nunes et al. (2007) from a psychiatric unit in Canada, and Hanson and Bussiere (1998) from a variety of populations due to their meta-analytic design. In addition, each study defined recidivism differently; for example, we used rearrest and reconviction while Nunes et al. (2007) combined a new charge, conviction, and incarceration into a single measure of recidivism. Offenders in Nunes et al.'s Canadian sample also received, on average, a 21-month sentence, which is far shorter than the 85-month average sentence for the BJS sample.

Other studies have used the amount of time served as a control variable. These studies using samples of Minnesota sex offenders have generally shown no relationship between the amount of time served in prison and sex crime recidivism (Duwe &

Donnay, 2008, 2010). These findings are intriguing considering the trends in Minnesota. The average sentence length in Minnesota has increased over time, yet the state has experienced a decline in sex crime recidivism (Minnesota Department of Corrections, 2007). Some argue that this decline in recidivism is due to an increase in the length and intensity of post-release supervision (Minnesota Department of Corrections, 2007). Therefore, lengthy sentences may not contribute to recidivism if states do more to monitor sex offenders after they are released or do more to successfully reintegrate sex offenders back into the community.

There are several reasons why sentence length might be positively related to recidivism. Length of sentence may be an indication of perceived recidivism risk. Minnesota, for example, uses a three-tiered risk-assessment system. According to Duwe and Donnay (2008), Level 3 offenders served 52.7 months on average, compared with 46.5 months for Level 1 and 2. Sex crime recidivism risk for Level 3 offenders was about twice as high compared to Level 1. Therefore, if sentence length is an indication of an offender's risk of recidivism, longer sentences would indicate those offenders sentenced to long terms of incarceration are more apt to recidivate post-release. Alternatively, several meta-analyses suggest that treatment has the potential to reduce recidivism among sex offenders, although more rigorous research is needed in this area (Hanson, Bourgon, Helmus, & Hodgson, 2009; Lösel & Schumucker, 2005; Reitzel & Carbonell, 2006). Edwards and Hensley (2001) argue that longer sentences may prevent sex offenders from participating in prison treatment programs because treatment is no longer an incentive for things such as early release due to changing sentencing laws. Early parole is also unlikely for sex offenders, which again decreases the incentive for treatment participation (Edwards & Hensley, 2001). Therefore, longer sentences, in conjunction with treatment no longer being a "carrot" or pathway to early release, may for some types of sex offenders increase the likelihood of recidivism post-release regardless of the length or intensity of post-release supervision.

If sentence length is an indicator of recidivism risk, this might also help to explain our unexpected finding that sentence length and time served were significant only when recidivism was measured as reconviction, a more restrictive measure, instead of rearrest, the more inclusive measure of recidivism. Those who are reconvicted for a new sex crime most likely represent higher risk sex offenders whose crimes are more harmful and or dangerous in nature. Not surprisingly, in our sample, those who were rearrested had a shorter average sentence length, 82 months, than those who were reconvicted at an average sentence length of 104 months. Perhaps sentence length is significantly related to sex crime recidivism when measured as reconviction because sentence length is an indicator of sex offenders who pose a greater risk to public safety.

We find that time served only reduces the likelihood of recidivism of child molesters. One possible explanation could be that, compared to other types of sex offenders, the longer child molesters spend in prison, the greater likelihood to participate and complete prison treatment programs, although to our knowledge this area remains unexplored. From a deterrence theory perspective, child molesters generally have lower rates of recidivism compared to other types of offenders (Hanson & Bussiere, 1998; Kruttschnitt, Uggen, & Shelton, 2000). Jacobs (2010) has argued that some

offenders may be more easily deterred than others; for example, some offenders are more willing or capable of contemplating potential sanctions. If child molesters are generally at lower risk to reoffend, they may be more “deterable” than other types of sex offenders.

Although our study adds to the existing research on sentence length and time served in relation to sex offender recidivism, the findings should be interpreted with caution due to two major limitations: the age of the data and the lack of risk information. First, because more current national sex offender recidivism data are unavailable, our analysis relies on tracking sex offenders released from prison in 1994 through 1997. This is a major limitation in that the sex offenders in our sample were most likely not subject to contemporary sex offender laws, such as registration and notification, residency restrictions, and sexually violent predator laws. These offenders were convicted prior to the passage of the federal version of Megan’s Law (1996) and proceeding legislation. While we are not testing the efficacy of these laws on sex crime recidivism, we acknowledge these laws may have an influence on recidivism. For instance, Schram and Milloy (1995) and Freeman (2009) found that registration and notification laws led to the quicker identification and arrest of sex offenders. Therefore, sex offender registration and notification laws could inflate recidivism rates if recidivism is measured as rearrest. On the other hand, there is a growing body of literature that suggests that sex offender registration and notification laws do little, if anything, to influence sex crime recidivism (Sandler, Freeman, & Socia, 2008; Tewksbury & Jennings, 2010).

The second major limitation is that the data we used, which were compiled from criminal history records and state and FBI RAP (records of arrest and prosecution) sheets, do not contain risk-assessment scores from instruments such as the Static-99 or RRASOR or the variables to calculate a risk score. Risk assessment may play a strong role in sentencing, such as sentence length meted out, and post-release supervision. Because we were unable to control for individual differences in risk of reoffense, it is possible that sentence length and or time served are unrelated to sex crime recidivism. Although we were unable to control for risk assessment scores, Nunes et al. (2007) found that their modified version of the RRASOR did not mediate the relationship between incarceration and length of incarceration and sex crime recidivism.

There are additional limitations we were also unable to address. There were no items that could be used to measure sexual attraction to children, such as the Screening Scale for Pedophilic Interests, so we used chronological age as a proxy. We could not include sex offender treatment in prison due to the very high proportion of missing data. The data do not include any information about post-release supervision in the community. Our sample is also a prison-based sample of sex offenders, even though many sex offenders instead serve community-based sanctions (Langevin et al., 2004). In addition, there are limitations to using official statistics to measure sex offender recidivism (Lisak & Miller, 2002; Rice, Harris, Lang, & Cormier, 2006). Several studies have found that, as a result of plea bargaining, sex offenses are often reclassified as violent non-sexual offenses (Langevin et al., 2004; Patrick & Marsh, 2011). RAP sheets tend to underestimate sex crimes. For instance, Rice et al. (2006) compared the

RAP sheets of 177 men to more comprehensive clinical files and determined that approximately 50 of the offenders should have been classified as sexually motivated offenders but were not. This results in persons who should be classified legally as sex offenders being reclassified or identified as violent non-sex offenders in official statistics.

Overall, the association between sex crime recidivism and the amount of sentence length meted out and the amount of time served in prison has important implications for the allocation of finite criminal justice resources, public safety, and the potential for successful sex offender reintegration. Because sex offenders are a heterogeneous group, a "one size fits all" model of increasingly punitive sentence lengths as a mechanism to reduce recidivism and increase public safety may not be the ideal answer. In order to further understand the complex relationships between sentence length, time served, sex crime recidivism, including the possible theoretical and pragmatic implications, further research should be done in this area with other samples of sex offenders from the United States.

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